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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,440	12/18/2001	Tohru Ueda	4034-5	1680

7590 05/07/2003

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EXAMINER

TRAN, MAI HUONG C

ART UNIT PAPER NUMBER

2818

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/020,440	Applicant(s) UEDA, TOHRU	
	Examiner Mai-Huong Tran	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 11-13 and 21-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restriction

Application's election without traverse of Group I (Claims 1-10 and 14-20) in Paper No. 6 drawn to a semiconductor device is acknowledged for prosecution in the subject application. Accordingly, claims 11-13 and 21-24 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Applicants have the right to file a divisional application covering the subject matter of the non-elected claims.

Drawings

The drawings are objected to for the following reasons.

Figures 11 and 12A-12G are not designated by a legend such as "Prior Art". The Legend is necessary in order to clarify what applicant's invention is (see MPEP § 608.02g).

Applicant is required to submit a proposed drawing correction, showing changes in red ink, in response to this Office action. However, formal correction of the noted defect(s) can be deferred until the application is allowed by the examiner (see MPEP § 608.02v).

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 5,412,493 to Kunii et al. in view of the remark.

Regarding to claim 1, Kunii discloses a thin-film transistor comprising a semiconductor layer (col. 13, line 6) and multiple gate electrodes 9 that have been formed over the semiconductor layer, wherein the semiconductor layer includes first and second doped regions, which have a first conductivity type, are spaced apart from each other and serve as source 3/drain 5 regions; a plurality of channel regions 2, which have a second conductivity type, are located between the first and second doped regions so as to face the gate electrodes 9, and include first and second channel regions 2, wherein the first channel region is closer to the first doped region than any other one of the channel regions is, while the second channel region is closer to the second doped region than any other one of the channel regions is; an intermediate region ~~4~~^{4'}, which has the first conductivity type and is located between two mutually adjacent ones of the channel

regions 2; a first lightly doped region 61, which has the first conductivity type and is located between the first channel region 2 and the first doped region 3; a second lightly doped region 64, which has the first conductivity type and is located between the second channel region 2 and the second doped region 5; a third lightly doped region 62, which has the first conductivity type, has a carrier concentration different from that of the first lightly doped region 61 and is located between the first lightly doped region 61 and the gate 7; and a fourth lightly doped region 63, which has the first conductivity type, has a carrier concentration different from that of the second lightly doped region and is located between the second lightly doped region 64 and the gate 7 as set forth in col. 13, lines 6-62, and fig. 16.

Kunii does not disclose the first and second heavily doped regions, the third lightly doped region is located between the first lightly doped region and the first channel region, and the fourth lightly doped region is located between the second lightly doped region and the second channel region.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the first and second heavily doped regions, the third lightly doped region is located between the first lightly doped region and the first channel region, and the fourth lightly doped region is located between the second lightly doped region and the second channel region since it was known in the art that the first and second heavily doped regions, the third lightly doped region is located between the first

lightly doped region and the first channel region, and the fourth lightly doped region is located between the second lightly doped region and the second channel region.

Claim 2 is rejected under the same rationale set forth above to claim 1.

Claim 3 is rejected under the same rationale set forth above to claim 1.

Claim 4 is rejected under the same rationale set forth above to claim 3.

Claim 5 is rejected under the same rationale set forth above to claim 4.

Claim 6 is rejected under the same rationale set forth above to claim 4.

Claim 7 is rejected under the same rationale set forth above to claim 1.

Claim 8 is rejected under the same rationale set forth above to claim 1.

Claim 9 is rejected under the same rationale set forth above to claim 1.

Claim 10 is rejected under the same rationale set forth above to claim 1.

Claims 14-20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 5,412,493 to Kunii et al. in view of the remark.

Regarding to claim 14, Kunii discloses the claimed invention except for the first channel region includes a first intrinsic channel region and the second channel region includes a second intrinsic channel region.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the first channel region includes a first intrinsic channel region and the second channel region includes a second intrinsic channel region since it

was known in the art that the first channel region includes a first intrinsic channel region and the second channel region includes a second intrinsic channel region.

Claim 15 is rejected under the same rationale set forth above to claim 14.

Claim 16 is rejected under the same rationale set forth above to claim 14.

Claim 17 is rejected under the same rationale set forth above to claim 14.

Claim 18 is rejected under the same rationale set forth above to claim 14.

Claim 19 is rejected under the same rationale set forth above to claim 14.

Claim 20 is rejected under the same rationale set forth above to claim 14.

Conclusion

Any inquiry concerning this communication on earlier communications from the examiner should be directed to Mai-Huong Tran, (703) 305-1958. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 6:30 PM. The examiner's supervisor, David Nelms can be reached on (703) 308-4910.

The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7724. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Mai-Huong Tran



HOAI HO
PRIMARY EXAMINER